

Quad D.E.[™]

D.E. Cartridge Style Filter



Installation and User's Guide

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

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IMPORTANT SAFETY PRECAUTIONS



Important Notice:

This guide provides installation and operation instructions for the Quad D.E.™ Filter. Consult Pentair Water Pool and Spa™ with any questions regarding this equipment.

Attention Installer: This guide contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment after installation or left on or near the filter.

Attention User: This manual contains important information that will help you in operating and maintaining this filter. Please retain it for future reference.

⚠ WARNING — Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call (800) 831-7133 for additional free copies of these instructions.

Consumer Information and Safety

The Quad D.E. Filters are designed and manufactured to provide many years of safe and reliable service when installed, operated and maintained according to the information in this manual and the installation codes referred to in later sections. Throughout the manual, safety warnings and cautions are identified by the “⚠” symbol. Be sure to read and comply with all of the warnings and cautions.

⚠ WARNING — Do not operate the filter until you have read and understand clearly all the operating instructions and warning messages for all equipment that is a part of the pool circulating system. The following instructions are intended as a guide for initially operating the filter in a general pool installation, however each installation may have unique conditions where the starting procedure could be different. Failure to follow all operating instructions and warning messages can result in severe injury, death, or property damage.

⚠ WARNING — **THIS FILTER OPERATES UNDER HIGH PRESSURE.**



When any part of the circulating system, (e.g., clamp, pump, filter, valve(s), etc.), is serviced, air can enter the system and become pressurized. Pressurized air can cause the lid to be blown off which can result in severe injury, death, or property damage. To avoid this potential hazard, follow these instructions:

1. Before repositioning valve(s) and before beginning the assembly, disassembly, or adjustment of the clamp or any other service of the circulating system: (A) Turn the pump **OFF** and **shut OFF** any automatic controls to ensure the system is NOT inadvertently started during the servicing; (B) open the High Flow™ manual air relief valve; (C) wait until all pressure is relieved.
2. Whenever installing the filter clamp **FOLLOW THE FILTER CLAMP INSTALLATION INSTRUCTIONS EXACTLY.**
3. Once service on the circulating system is complete **FOLLOW SYSTEM RESTART INSTRUCTIONS EXACTLY.**
4. Maintain circulation system properly. Replace worn or damaged parts immediately, (e.g., clamp, pressure gauge, valve(s), o-rings, etc).
5. Be sure that the filter is properly mounted and positioned according to instructions provided.

IMPORTANT SAFETY PRECAUTIONS (continued)



WARNING — Due to the potential risk that can be involved it is recommended that the pressure test be kept to the minimum time required by the local code. Do not allow people to work around the system when the circulation system is under pressure test. Post appropriate warning signs and establish a barrier around the pressurized equipment. If the equipment is located in an equipment room, lock the door and post a warning sign.

Never attempt to adjust any closures or lids or attempt to remove or tighten bolts when the system is pressurized. These actions can result in a separation or failure of system components. This instantaneous release of energy can cause components to be accelerated to high velocities and to travel far distances. These components could cause severe personal injury or death if they were to strike a person.



WARNING — **Risk of electrical shock or electrocution.**



This pool filter must be installed by a qualified pool serviceman in accordance with the National Electrical Code and all applicable local codes and ordinances.

Always disconnect power to the pool equipment at the circuit breaker before servicing any of the equipment. Ensure that the disconnected circuit is locked out or properly tagged so that it cannot be switched on while you are working on the pool equipment. Failure to do so could result in serious injury or death to serviceman, pool users or others due to electric shock.

Position the filter and the air relief valve to safely direct water drainage and purged air or water. Water discharged from an improperly positioned filter or valve can create an electrical hazard that can cause severe personal injury as well as damage property.



WARNING — To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.



CAUTION — This filter is for use with permanently installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity.

IMPORTANT SAFETY PRECAUTIONS (continued)

General Installation Information

The following information should be read carefully since it outlines the proper manner of care and operation for your filter system. You can expect maximum efficiency and life from your filtration system by following these instructions and taking the necessary preventative care.

- Have a trained pool professional perform all pressure tests.
- Do not connect the system to a high pressure or city water system.
- Trapped air in the system can create a hazardous condition. BE SURE to purge all air from the system before operating or testing equipment.
- DO NOT pressure test with compressed air!
- Check local codes for restrictions on backwash to waste piping, separation tank requirements and spent D.E. disposal requirements.
- DO NOT use more than the recommended amount of D.E. in your filter. To do so can cause a buildup of D.E. and “bridging” between the elements which will plug the filter.
- Piping must conform to local/state plumbing and sanitary codes.
- Support piping independently to prevent strains on filter or valve.
- Fittings restrict flow; for best efficiency, use the fewest possible fittings.
- A check valve installed ahead of the filter inlet will prevent contaminants from draining back into the pool.
- A check valve installed between the filter and heater will prevent hot water from backing up into the filter and deforming the internal components.
- To allow recirculation during precoat, (if precoat pot is used), install a recirculation line with shut-off between pad return line and pump suction.
- All wiring, grounding and bonding of associated equipment must meet local and/or National Electrical Code standards.

Section 1

Introduction

Quad D.E.™ Cartridge Style Filter Overview

The crystal clarity of D.E. with cartridge convenience

Diatomaceous earth (D.E.) filters have always been recognized for providing the cleanest pool water. And cartridge filters are popular for their convenience and easy-cleaning features. Now, Pentair has found a way to bring you the best of both.

The new Quad D.E. Cartridge Filter features four easily accessible and removable cartridges. When water passes through these cartridges, microscopic impurities like dirt, algae, and some forms of bacteria are filtered out, giving you water that really sparkles.

The four-cartridge design greatly increases the filter's internal surface area, meaning much greater cleaning capacity per cycle without an increase in canister size. And cleaning couldn't be easier. In fact, you have three options...backwash and recharge like a traditional D.E. filter, remove and rinse off the cartridges, or simply remove the lid, leave the cartridges in place, open the drain plug, and rinse.

You'll even save money – water flows through the Quad D.E. so efficiently that with the correct pump you use less energy.

The highest water clarity with the lowest amount of fuss

The Quad D.E. combination of diatomaceous earth (D.E.) in a convenient cartridge design means better performance and longer periods between cleanings. Because D.E. removes the tiniest of contaminants – particles as small as five microns – you can count on clean, crystal-clear water for years to come.



Quad D.E. Filter

Patent Pending

General Features

- Four large-capacity cartridges provide maximum filter surface area for greater dirt-trapping capacity and longer periods between cleanings.
- Unique internal flow path ensures optimum filtration and backwashing efficiency.
- Chemical resistant, fiberglass reinforced polypropylene tank for exceptional strength and long life.
- Tension Control™ clamp for secure closure.
- 2” plumbing connections for simple and secure maximum flow.
- Conveniently located 2" drain for easy and efficient clean-out and 100% draining.

Additional Features:

- High Flow™ manual air relief valve and continuous internal air relief work together to maintain efficient filtration and prevent over-pressurization.
- Durable 8 oz. polypropylene cartridge media has superslick surfaces, making them easier to clean than conventional cartridge filters.
- Easily removable cartridge elements to simplify maintenance and save you time.

Section 2

Installation

The following general information describes how to install the Quad D.E.™ Filter.

Note: Before installing this product, read and follow all warning notices and instructions starting on page ii.

Installing the Quad D.E.™ Filter

Only a qualified service person should install the Quad D.E. Filter.

General Information

- The filter should be mounted on a level concrete slab. Position the filter so that instructions, warnings and the pressure gauge are visible to the operator. It also should be positioned so that the piping connections, control valve and drain port are convenient and accessible for servicing and winterizing.
- Install electrical controls (e.g., on/off switches, timers, control systems, etc.) at least five (5) feet from the filter. This will allow you enough room to stand clear of the filter during system start up.
- Allow sufficient clearance around the filter to permit visual verification that the clamp is properly installed around the tank flanges, see Figure 1.
 - Tap the clamp with a mallet or similar tool to ensure uniform loading during clamp tightening.
- Allow sufficient space above the filter to remove the filter lid for cleaning and servicing. This distance will vary with the model of filter you are using. See Table 1 for the required vertical clearance.

WARNING — Risk of electrical shock or electrocution.



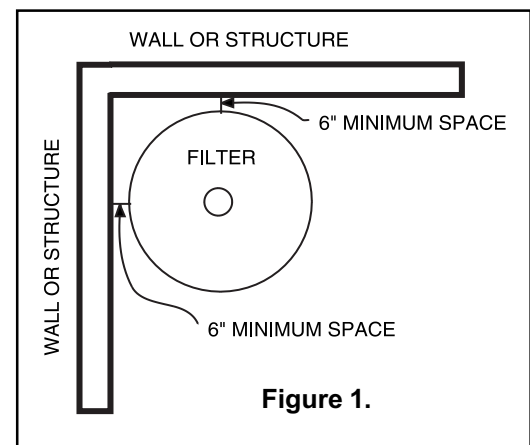
Position the filter and High Flow™ manual air relief valve to safely direct water drainage and purged air or water. Water discharged from an improperly positioned filter or valve can create an electrical hazard that can cause severe personal injury as well as damage property.

- Position the filter to safely direct water drainage. Rotate the High Flow™ manual air relief valve to safely direct purged air or water. Water discharged from an improperly positioned filter or valve can create an electrical hazard as well as damage property.

CAUTION — The Pentair Quad D.E. filter has a different water flow pattern than all other Pentair D.E. filters. When plumbing the filter with a backwash valve, one of the following valves, listed below, must be used. Failure to use the correct backwash valve could damage the filter elements and void the warranty.

- Your filter requires one of the following Pentair Water Pool and Spa accessories which must be purchased separately:
 - P/N 261055 - 2" Multiport Valve Kit
 - P/N 261173 - 1½" Multiport Valve Kit
 - P/N 261050 - 2" HiFlow Valve Kit
 - P/N 261165 - 2" PVC Slide Valve Kit
 - P/N 263034 - 2" ABS Slide Valve Kit

Model	P/N	Size	Vertical Clearance Req.	NSF
QUAD 60	188592	60 sq. ft.	62 in.	yes
QUAD 80	188593	80 sq. ft.	68 in.	yes
QUAD 100	188594	100 sq. ft.	74 in.	yes



General Information, cont.'d.

7. Make all plumbing connections in accordance with local plumbing and building codes. Check local codes for restrictions on backwash to waste piping, separation tank requirements and spent D.E. disposal requirements.
8. Filter plumbing connections are provided with an o-ring seal. To avoid damage to the o-rings, use only a silicone base lubricant on the o-rings. Do not use pipe joint compound, glue or solvent on the bulkhead connections.



WARNING — THIS FILTER OPERATES UNDER HIGH PRESSURE.



Never subject this filter to pressure in excess of the maximum working pressure - even when conducting hydrostatic pressure tests. Pressures above the maximum working p.s.i. pressure can cause the lid to be blown off, which can result in severe injury, death or property damage.

9. The maximum working pressure of this filter is 50 psi. Never subject this filter to pressure in excess of this amount - even when conducting hydrostatic pressure tests. Pressures above 50 psi can cause the lid to be blown off, which can result in severe injury, death or property damage.

When performing hydrostatic pressure tests or when testing for external leaks of the completed filtration and plumbing system, ensure that the maximum pressure that the filtration system will be subjected to **DOES NOT EXCEED THE MAXIMUM WORKING PRESSURE OF ANY OF THE COMPONENTS CONTAINED WITHIN THE SYSTEM.** In most cases, the maximum working pressure will be stated on each component of the system.

If doubt exists as to the pressure to which the system will be subjected, install an ASME approved automatic Pressure Relief or Pressure Regulator in the circulation system for the lowest working pressure of any of the components in the system.

Section 3

Filter Operation

This section describes how the Quad D.E.[™] operates.

General Filter Information



WARNING — **THIS FILTER OPERATES UNDER HIGH PRESSURE.** When any part of the circulating system, (e.g., clamp, pump, filter, valve(s), etc.), is serviced, air can enter the system and become pressurized. Pressurized air can cause the lid to be blown off which can result in severe injury, death, or property damage. To avoid this potential hazard, follow these instructions:

1. Before repositioning valve(s) and before beginning the assembly, disassembly, or adjustment of the clamp or any other service of the circulating system: (A) Turn the pump **OFF** and **shut OFF** any automatic controls to ensure the system is NOT inadvertently started during the servicing; (B) open the High Flow[™] manual air relief valve; (C) wait until all pressure is relieved.
 2. Whenever installing the filter clamp **FOLLOW THE FILTER CLAMP INSTALLATION INSTRUCTIONS EXACTLY.**
 3. Once service on the circulating system is complete **FOLLOW SYSTEM RESTART INSTRUCTIONS EXACTLY.**
 4. Maintain circulation system properly. Replace worn or damaged parts immediately, (e.g., clamp, pressure gauge, valve(s), o-rings, etc).
 5. Be sure that the filter is properly mounted and positioned according to instructions provided.
1. This filter operates under pressure. When clamped properly and operated without air in the water system, this filter will operate in a safe manner.
 2. The maximum working pressure of this filter is 50 psi. Never subject this filter to pressure in excess of this amount - even when conducting hydrostatic pressure tests. Pressures above 50 psi can cause the lid to be blown off, which can result in severe injury, death or property damage.

When performing hydrostatic pressure tests or when testing for external leaks of the completed filtration and plumbing system, ensure that the Maximum Pressure that the filtration system will be subjected to **DOES NOT EXCEED THE MAXIMUM WORKING PRESSURE OF ANY OF THE COMPONENTS CONTAINED WITHIN THE SYSTEM.** In most cases, the maximum working pressure will be stated on each component of the system.

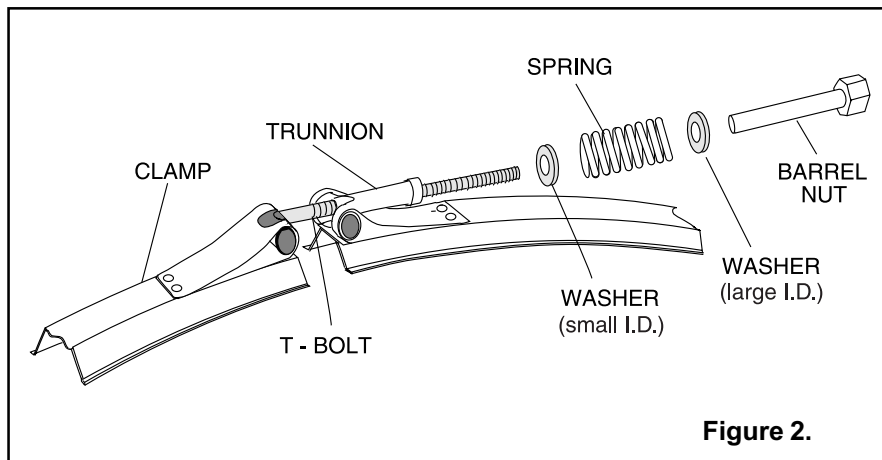
If doubt exists as to the pressure to which the system will be subjected, install an ASME approved automatic Pressure Relief or Pressure Regulator in the circulation system for the lowest working pressure of any of the components in the system.

3. The pressure gauge is the primary indicator of how the filter is operating. Maintain your pressure gauge in good working order.
4. Never operate filter in excess of three (3) minutes without use of diatomaceous earth. Diatomaceous earth is the substance that filters the water, the filter cloth merely supports the diatomaceous earth. Operating without diatomaceous earth will damage filter elements and shorten filtering cycles.

Clamp Installation

These instructions **MUST BE FOLLOWED EXACTLY** to prevent the lid from blowing off during system restart or later operation.

1. Perform the following steps before working on any part of the circulating system, e.g., clamp, pump, filter, valve(s), etc.
 - a. Turn the pump off and shut off any automatic controls to ensure that the system is not inadvertently started during servicing.
 - b. Open the High Flow™ manual air relief valve until it snaps into the full open position (this only requires a quarter turn counter clockwise).
 - c. Wait until all pressure is relieved. **Never attempt to assemble, disassemble or adjust the filter clamp while there is any pressure in the filter.**
2. Be certain the o-ring is in position in the lower tank half. Press the filter lid over the lower tank half sandwiching the o-ring in between.
3. Holding the ends of the filter clamp apart, position the center segment of the filter clamp over both upper and lower tank flanges. Bring the ends of the filter clamp together, while inserting the T-bolt into the trunnion; see Figure 2.
4. Using Figure 2 as a guide — place washer (large I.D.) and the tension-indicating spring on the barrel nut. Place the second washer (small I.D.) on the T-bolt. Hand-tighten nut. Recheck filter clamp for proper seating on tank flanges.
5. Begin to tighten nut using a 7/8 in. wrench. Then tap around the outside of the filter clamp with a mallet (or similar tool) to ensure uniform loading and proper seating of the clamp. Continue tapping and tightening until the spring coils touch each other. Do not tighten beyond this point.
6. Follow the instructions in [Section 4](#); on [page 7](#), SYSTEM RESTART INSTRUCTIONS.
7. The spring coils should be checked at least once per month to ensure that they continue to touch each other, indicating that the clamp is under sufficient tension. If coils fail to touch, repeat Step 5 above.



Section 4

System Restart Instructions

This section describes how to restart the Quad D.E.TM filter system.

System Restart Instructions



WARNING — **THIS FILTER OPERATES UNDER HIGH PRESSURE.** When any part of the circulating system, (e.g., clamp, pump, filter, valve(s), etc.), is serviced, air can enter the system and become pressurized. Pressurized air can cause the lid to be blown off which can result in severe injury, death, or property damage. To avoid this potential hazard, follow these instructions:

1. **Open the High FlowTM manual air relief valve until it snaps into the full open position (this only requires a quarter turn counter clockwise).** Opening this valve rapidly releases air trapped in the filter.
2. Stand clear of the filter tank, then start the pump.
3. Close the High FlowTM manual air relief valve after a steady stream of water appears.
4. The system is not working properly if:
 - a. A solid stream of water does not appear within 30 seconds after the pump's inlet basket fills with water.
 - b. The pressure gauge indicates pressure before water out-flow appears.

If either condition exists, **shut off the pump immediately**, open valves in the water return line to relieve pressure, and clean the air relief valve; see [Section 3](#); on [page 5](#), FILTER OPERATION. If the problem persists, call Customer Service at (800) 831-7133.

Preparing Diatomite

Your filter requires diatomaceous earth (D.E. or diatomite) for proper filtration and operation. Your filter elements must be precoated with this material in order to protect their surfaces and provide the most efficient filtering action. Refer to Table 2 for the proper quantity to use with your filter. We recommend the use of D.E. which is sold and labeled for use with swimming pools and spas. These grades of D.E. typically have a median particle size of 34 microns, which is ideal for most applications.

1. The Quad D.E. filters are listed with the appropriate amounts of diatomite to be used to precoat the filter elements. A one (1) pound coffee can filled (level) with diatomite is equal to one half pound weight of diatomaceous earth. Do not "pack" or compress diatomite into the coffee can.
2. Mix the required amount of diatomite with sufficient water in a bucket to make a thin, milky mixture.
3. Follow the instructions below for COATING THE FILTER ELEMENTS to introduce the slurry of diatomite into the filter.

Filter Area (sq. ft.)	Weight of D.E.	No. of 1 lb. Coffee Cans
60	6 lbs.	12
80	8 lbs.	16
100	10 lbs.	20

Coating the Filter Elements with Diatomaceous Earth

Table 2



CAUTION — The following information should be read carefully since it outlines the proper manner of care and operation for your filter system. You can expect maximum efficiency and life from your filtration system by following these instructions and taking the necessary preventative care.

1. Slide Valve.
 - a. Twist to unlock plunger, then raise the handle as far as it will go. Turn handle clockwise to lock lower pin in underside of cap.
2. Multiport Valve.
 - a. Position valve to FILTER OR VACUUM TO POOL setting. This is your normal flow from the pump through the filter to the pool. Open the High Flow™ manual air relief valve on the filter. Proceed with Steps 2.b to 2.g, below.
 - b. Prepare recommended amount of diatomaceous earth by mixing it with water in a bucket until it is the consistency of milk; see above, PREPARING DIATOMITE.
 - c. On initial start-up the pump must be primed by filling the hair and lint strainer pot with water. You may have to do this several times.
 - d. Follow the steps outlined in Section 4; on page 7, SYSTEM RESTART INSTRUCTIONS for system start-up.
 - e. Introduce the slurry of diatomite from the bucket directly into the top of the skimmer. With the pump running and the pool skimmer valve open, pour the mixture directly into the skimmer. The slurry will be drawn into the filter.
 - f. Your filter is now operational. Note the original starting pressure on the gauge and record it below.
 - g. Clean your filter when pressure reads between 10 to 12 psi higher than the original starting pressure. Your filter pressure reading will increase as it removes dirt from your pool. However, this build-up of pressure will vary due to different bathing loads, temperature, weather conditions, etc.
 - h. MY ORIGINAL STARTING PRESSURE IS _____ psi (pounds per square inch). I SHOULD BACKWASH AT _____ psi.

NOTE

If the starting pressure after backwashing the filter or cleaning the elements indicates 4 to 5 psi higher than the normal starting pressure, the filter elements must be cleaned. Refer to Step 1; on page 10, CLEANING FILTER ELEMENTS for instructions.

Section 5

Maintenance

Cleaning the Quad D.E.™ Filter Manually

1. Turn the pump off, shut off any automatic controls to ensure that the system is not inadvertently started during servicing.
2. Automatic skimmer should have Vari-Flo trimmer valve set to 100% skimmer. This will close off the main drain line. If there is a separate skimmer line and main drain line plumbed to the pump, close the main drain valve.
3. Open the filter High Flow™ manual air relief valve, and the waste drain valve or plug if your system has one. Disconnect air relief valve drain hose if installed.
4. Remove the pump's hair and lint strainer pot lid and clean the basket. Replace basket and secure lid. Follow the instructions provided with your pump.
5. **Never attempt to assemble, disassemble or adjust the filter clamp while there is pressure in the filter.** Release the tank clamp assembly and remove tank lid.
6. Ensure the internal air bleed assembly is in place and free of diatomite or debris, see [page 12](#), CLEANING THE INTERNAL AIR BLEED TUBE.
7. Remove top manifold and cartridge style elements separately.
8. Using a garden hose without a nozzle, direct water spray at cartridge style elements to dislodge and wash away accumulated foreign matter. Flush each cartridge inside and out.



WARNING — Please heed all manufacturers' posted instructions, warnings and cautions when using Baquacil® or Baqua Clean®.



NOTE

Special care must be taken when cleaning filter cartridge style elements used in a swimming pool or spa using Baquacil as a sanitizer. Because of the way Baquacil works, the filter element must be cleaned more thoroughly and more frequently than in a chlorine system. If extreme care is not taken to completely remove all residue from the filter media a buildup will occur. This buildup will significantly shorten the life of the filter element.

Baquacil is a mild coagulant which combines bacterial cells as well as other small particles contributed by the environment, bathers, etc. into particles large enough to be trapped by the filter. In comparison with all other trapped contaminants in a typical pool or spa the amount of bacterial cells that are deposited on the filter is minimal. The resulting deposit is a gray sticky film which can only be removed with Baqua Clean. If TSP or any TSP-type cleaner is used prior to stripping the film, the cleaner and the gray film will combine to form a gum-like substance. Once this occurs, the substance cannot be removed from the media and the filter cartridge must be replaced.

9. Lift bottom manifold out of the tank and flush off any debris.
10. Direct water spray to wash out the inside of the tank body. Water and debris will drain out through the open drain port.
11. Check gasket around outer lip of bottom plate. Gasket must be firmly and evenly set in place. Do not use petroleum base lubricants to avoid damage to the gasket.
12. Place bottom manifold, 4 cartridge style elements, top manifold and air relief tube in place. Make sure the spring and standpipe assembly are retained on the top manifold. Ensure the air relief tube stays in an upright position. This is essential for the maximum air removal from inside the tank.
13. Be certain the o-ring is in position in the lower tank half. Press the filter lid over the lower tank half and sandwich the o-ring in between.
14. Replace tank top and carefully follow instructions on [page 6](#), CLAMP INSTALLATION INSTRUCTIONS.
15. Replace drain plug and reinstall air relief valve drain hose if used.

Replacing Filter Cartridge Style Elements

Filter cartridge style element life will vary with pool conditions such as bather load, wind, dust, etc. You can expect an average cartridge life of 3 years under normal conditions.

1. To replace cartridge style elements follow steps in [Section 5](#); on [page 9](#), CLEANING FILTER MANUALLY, eliminating step 8.

Cleaning your Filter using a System with a Separation Tank

1. Before working on any part of the circulating system, clamp, pump, filter, valve(s), etc., perform the following steps.
 - a. Turn the entire pool/spa system off to ensure that the system is not inadvertently started during servicing.
 - b. Open the High Flow™ manual air relief valve.
 - c. Wait until all pressure is relieved. **Never attempt to assemble, disassemble or adjust the filter clamp while there is pressure in the filter.**
2. Turn skimmer to full skim position and close main drain line.
3. Remove pump lid and clean basket. Replace basket and secure lid.
4. Valve Procedures.
 - a. Slide Valve.
 - (1) Push the handle on the valve down with slight twisting motion as far as it will go. Lock upper pin in cap. Open High Flow™ manual air relief valve on filter. Proceed with steps [b\(1\) to b\(6\)](#) on [page 11](#).
 - (2) **Open the High Flow™ manual air relief valve until it snaps into the full open position (this only requires a quarter turn counter-clockwise).** Opening this valve rapidly releases air trapped in the filter.
 - (3) Stand clear of the filter tank, then start the pump.
 - (4) Close the High Flow™ manual air relief valve after a steady stream of water appears.
 - (5) When water flows clear in sight glass or discharge line, shut off pump.
 - (6) Position the Slide valve to the normal FILTER setting by raising the handle and twisting it to the locked position.
 - (7) Open High Flow™ manual air relief valve on top of separation tank, wait for water to stop draining from air relief.
 - (8) Loosen Separation Tank clamp and lift off Separation Tank lid.
 - (9) Remove bag and dispose of diatomite in trash can. Replace clean bag and set bag in seat (curved portion of Separation Tank). Make sure the top of the bag is below the inlet to prevent earth from going back into pool, one double bag is furnished with Separation Tank.

NOTE

Filter waste and diatomite are trapped by the heavy-duty double lined Separation Tank bag. Contents are to be placed in a waste or trash container, clean the bag and re-insert in the Separation Tank. **DO NOT LEAVE THE SEPARATION TANK BAG EXPOSED IN THE SUN.** The manufacturer cannot assume any responsibility for torn, or damaged bags, if left in the sun to dry.

- (10) Replace Separation Tank lid and secure Separation Tank lid clamp. Follow instructions on [page 6](#), CLAMP INSTALLATION INSTRUCTIONS.
 - (11) Leave valve in normal FILTER position.
 - (12) Follow instructions in [Section 4](#); on [page 7](#), SYSTEM RESTART INSTRUCTIONS to start up filter.
 - (13) Introduce the recommended amount of diatomite per [Section 4](#); on [page 8](#), COATING THE FILTER ELEMENTS. Your filter is now in operation.
-

Cleaning your Filter using a System with a Separation Tank, cont'd.

b. Multiport Rotary Valve.

After completing Steps 1 to 3 of this section; on [page 10](#), perform the following steps:

- (1) Position valve to BACKWASH setting.
- (2) **Open the High Flow™ manual air relief valve until it snaps into the full open position (this only requires a quarter turn counter-clockwise).** Opening this valve rapidly releases air trapped in the filter.
- (3) Stand clear of the filter tank, then start the pump.
- (4) Close the High Flow™ manual air relief valve after a steady stream of water appears.
- (5) When sight glass shows a clear flow of water, shut off pump.
- (6) Position Multiport Rotary valve to CLOSED setting.
- (7) Follow section 4.a – Slide Valve on [page 10](#).

Cleaning Filter Elements

For a more thorough cleaning of the individual elements, perform the following steps:

1. Cleaning with water:
 - a. Using a garden hose, thoroughly flush off all contaminated diatomite from the filter element surfaces.
2. Cleaning with muriatic acid:



WARNING — Working with muriatic acid can be dangerous. When cleaning elements always wear rubber gloves and eye protection. Add acid to water, do not add water to acid. Splashing or spilling acid can cause severe personal injury and/or property damage.



- a. A stiffening of the fabric caused by mineral deposits is usually referred to as "liming up". It usually is due to deposits of either magnesium or calcium or both. Removal of these deposits may be accomplished by soaking the filter elements in six (6) parts water to one (1) part hydrochloric acid (muriatic acid).
- b. Wear rubber gloves and eye protection when mixing the solution, and handling or rinsing the filter elements.
- c. Soak for at least four (4) hours in a plastic tub or pail.
- d. Rinse filter elements thoroughly in tap water.

Cleaning the Internal Air Bleed Tube

1. Rinse the air bleed tube with water to clean away built-up debris. Normally, this is all that is necessary to properly clean the tube.

Cleaning the High Flow™ Manual Air Relief Valve

1. Turn the pump off and shut off any automatic controls to ensure that the system is not inadvertently started during servicing.
2. **OPEN THE HIGH FLOW™ MANUAL AIR RELIEF VALVE UNTIL IT SNAPS INTO THE FULL OPEN POSITION, THEN WAIT UNTIL ALL PRESSURE IS RELIEVED.**
3. With the High Flow™ manual relief valve attached to the filter tank, pull out the locking tabs and remove the valve stem and cover assembly with a counter-clockwise and lifting motion, see Figure 3.
4. Clean debris from the valve stem and body. Ensure that the filter tank's air passage is open by inserting a 5/16 in. drill bit through the valve body. Ensure that the o-rings are in good condition, properly positioned, and lubricated with a silicone base lubricant.
5. Reinstall the valve stem and cover assembly with a downward and clockwise motion until it snaps into position.

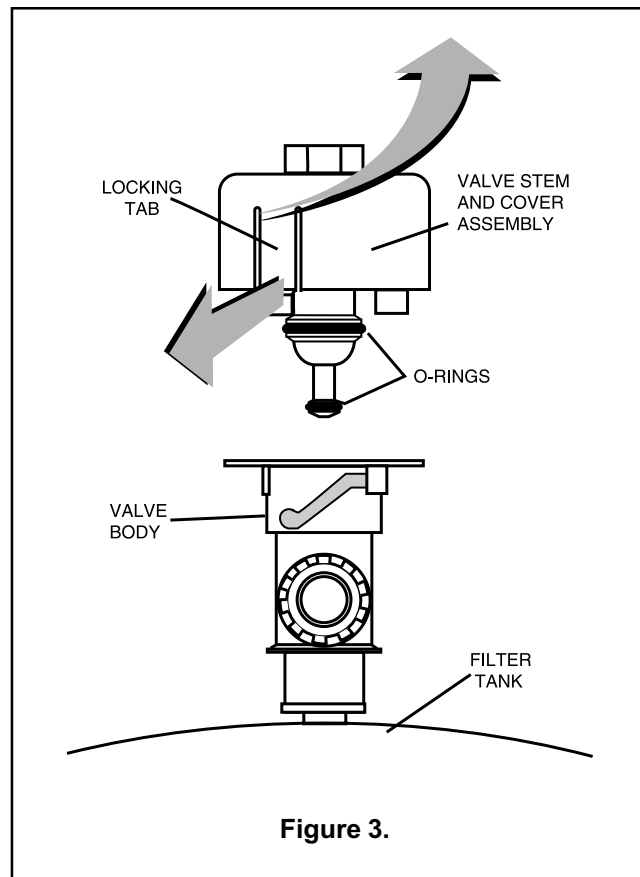


Figure 3.

Section 6

Troubleshooting

Use the following troubleshooting information to resolve possible problems with your Quad D.E.[™] Filter.

 **WARNING — THIS FILTER OPERATES UNDER HIGH PRESSURE.**



When any part of the circulating system, (e.g., clamp, pump, filter, valve(s), etc.), is serviced, air can enter the system and become pressurized. Pressurized air can cause the lid to be blown off which can result in severe injury, death, or property damage.

1. If you are not familiar with your pool filtering system and/or heater:
 - a. **Do NOT** attempt to adjust or service without consulting your dealer, or a qualified pool technician.
 - b. Read the entire Installation & User's Guide before attempting to use, service or adjust the pool filtering system or heater.

Note: Turn off power to unit prior to attempting service or repair.

Problems and Corrective Actions

Problem	Corrective Action	
AIR ENTERING THE FILTER	Correct any conditions in your filtration system that allow air to enter the system.	<ol style="list-style-type: none"> a. Low water level in pool or spa - skimmer is starving for water with pump running. Add water to pool or spa. b. Air bubbles or low water level in pump hair and lint pot are caused by the following factors: <ol style="list-style-type: none"> (1) Low water level. (2) Clogged skimmer basket. (3) Split suction cleaner hose. (4) Leak in pump hair and lint pot lid. (5) Leak in pump suction line. c. Air bubbles coming out of water return lines into pool or spa with pump running, see steps a-b, above. d. Air is discharged from the High Flow[™] manual air relief valve on top of the filter when the valve is opened with the pump running, see steps a-b above.
LIMING-UP	A stiffening of the fabric caused by mineral deposits. It usually is due to deposits of either magnesium or calcium or both.	<ol style="list-style-type: none"> a. Removal of these may be accomplished by soaking the grids in six (6) parts water to one (1) part hydrochloric acid (muriatic acid). b. Refer to page 10, Cleaning Filter Elements with muriatic acid for cleaning instructions.
CLOUD OF DIRT	A brief "cloud" of dirt may appear immediately when the filter starts.	<ol style="list-style-type: none"> a. This is a characteristic of diatomite filters.
SHORT FILTER RUNS	Until the water initially put into the pool has been completely filtered, short filter runs are normal.	<ol style="list-style-type: none"> a. Plaster dust can be responsible for short filter runs, requiring frequent cleaning. b. Elements may be loaded with oils, debris, etc. Clean elements, refer to Cleaning Filter Elements on page 11. c. Overcharging with D.E., refer to page 8.

Troubleshooting, cont'd.

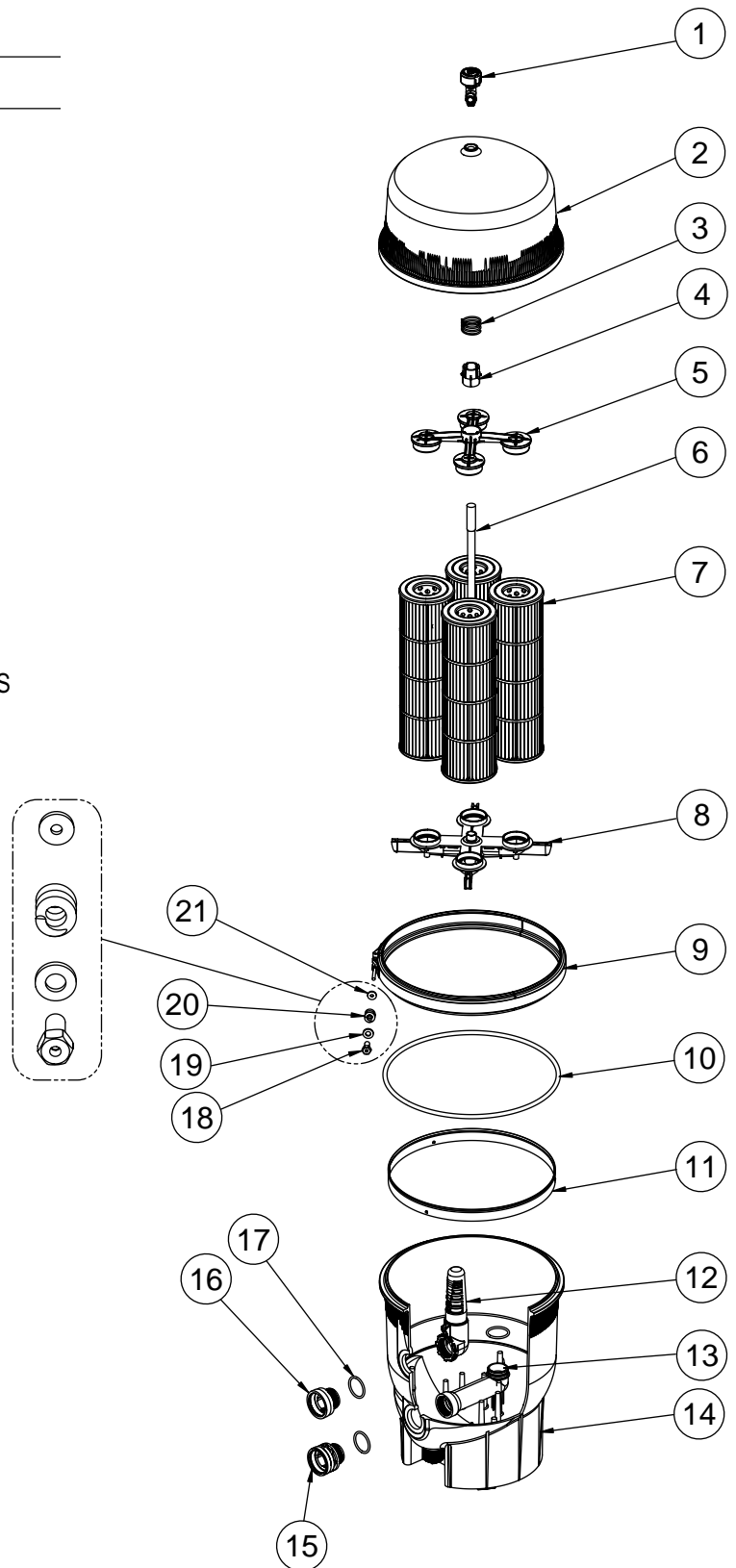
Problems and Corrective Actions

Problem	Corrective Action	
PRESSURE DROPS ON GAUGE		a. If pressure drops on gauge, shut off power to pump and turn motor shaft with your fingers. If it turns freely then the pump must be disassembled and the impeller checked to see if it is clogged. If it is not frozen or clogged then there is an obstruction in the line between the pool and the pump.
PRESSURE REMAINS HIGH AFTER BACKWASH		a. If pressure remains high after backwash - backwash filter again. If still high, treat for conditions covered by LIMING-UP above.
MAINTAIN YOUR PRESSURE GAUGE IN GOOD WORKING ORDER	The pressure gauge is an important part of the filter system. It is your primary indicator of how the system is operating.	a. Check the operation of your pressure gauge in the following manner: <ol style="list-style-type: none"> (1) The pressure gauge should go to zero (0) when the system is turned off and pressure is relieved. (2) The pressure gauge should indicate pressure when the system is operating. (3) The pressure gauge should be readable and not damaged in any way. (4) Replace the pressure gauge if it is not meeting the requirements of items (1) through (3) of this section.
DIATOMITE IS CONTINUOUSLY ENTERING THE POOL		a. Inspect the elements for any tears or holes. b. Inspect the internal air bleed sock for tears and proper installation. c. Inspect the elements and make sure the elements are positioned vertically and properly seated between the upper manifold and lower manifold.

Section 7 Replacement Parts

Replacement Parts List

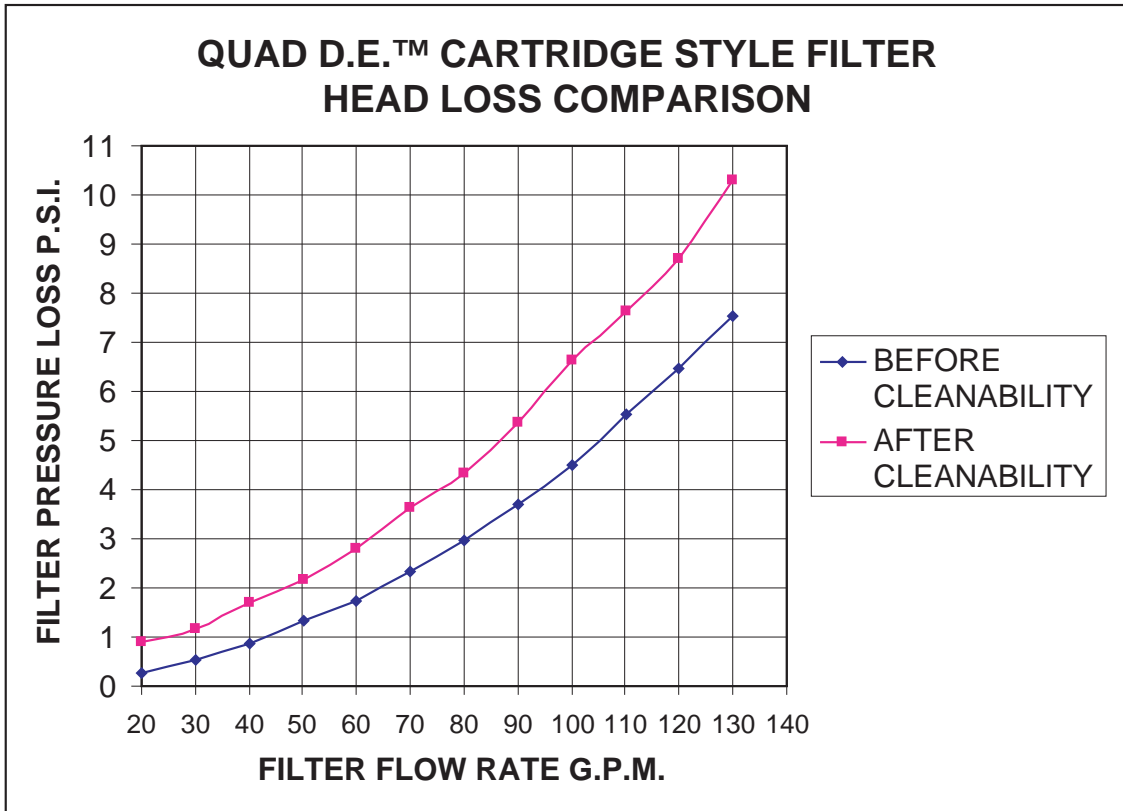
ITEM	P/N	DESCRIPTION
1	98220100	ASSY. MANUAL AIR RELIEF VALVE
2	170024	LID, QUAD 60
2	178581	LID, QUAD 80
2	178582	LID, QUAD 100
3	178616	SPRING COMPRESSION - CNC PLS
4	178576	ADAPTER, SHORT
5	170014	MANIFOLD TOP CART - CNC PLS
6	170029	AIR BLEEDER ASSY., QUAD 60
6	170028	AIR BLEEDER ASSY., QUAD 80
6	178583	AIR BLEEDER ASSY., QUAD 100
7	190156	CARTRIDGE, QUAD 100
7	190152	CARTRIDGE, QUAD 80
7	190151	CARTRIDGE, QUAD 60
8	170040	MANIFOLD ASSY. BOTTOM - CNC PLS
9	53008600	CLAMP RPM FLT FINISHED
10	39010200	O-RING RPM TANK CLAMP
11	195339	RING BACKUP- FNS PLS CNC PLS
12	190039	BAFFLE ASSY. - CNC PLS
13	178567	PIPE OUTLET - RPM FLTR
14	190089	BOTTOM TANK W/DRAIN PLUG 7.5"
15	178575	BULKHEAD BOTTOM - FNS PLS
16	194801	BULKHEAD - FNS 2 3/8-8 BUTT
17	86006900	O-RING 2-329 BULKHEAD RPM
18	194997	NUT - FNS/INS SPL
19	195611	WASHER - FNS/INS LG ID
20	195612	SPRING- FNS/INS
21	195610	WASHER - FNS/INS SM ID



Section 8

Technical Data

Head Loss Comparison Curves



Flow Rate Table

QUAD D.E.™ CARTRIDGE STYLE FILTER								
Recommended Flow Rate								
Product #	Model #	Filter Area Sq. Ft.	Vertical* Clearance	Flow Rate GPM		Res. Turnover Capacity (Gallons)		
				Res.**	Comm.	6 hours	8 hours	12 hours
188592	Quad 60	60	62"	120	150	43,200	57,600	86,400
188593	Quad 80	80	68"	160	150	57,600	76,800	115,200
188594	Quad 100	100	74"	160	150	57,600	76,800	115,200

NOTE: Actual system flow will depend on plumbing size and other system components.

* Required clearance to remove filter elements.

** Maximum flow rate.

SAVE THESE INSTRUCTIONS

NOTES

